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SEATTLE CITY LIGHT WORK ORDER #89-6

1989 MONITORING OF THE GEORGETOWN FLUME

DISCUSSION ADDENDUM

Note: 8/9/90 this was omitted from final report because of numerous unresolved issues which would have been excessively time consuming to document & support. Cindy D'Quinn

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July 18, 1990

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July 18, 1990

Ms. Christy O'Quinn
Environmental Affairs Division
Seattle City Light
1015 Third Avenue
Seattle, Washington 98104

Dear Christy:

It has become impossible for scientific reports from Raven to Seattle City Light to serve a dual purpose. That is, to report the findings of projects to the Environmental Affairs Division and to report the findings of projects to whomever in the outside sector is concerned with the division's business. As a compromise, Raven is advocating the addition of a Discussion Addendum to the original report as is enclosed. The original copies will have no discussion, and can be scrutinized by the outside sector.

The reason for a change in format is that the elimination of all controversial aspects of these scientific studies eventually puts Raven in an untenable position. The change has been engendered by the effort to produce an acceptable final report for the Georgetown Flume Project under Work Order #89-6. From the beginning of the service contract, the intention of Raven was to report project findings according to the scientific method. After the results were presented, the conclusions, speculations on reasonable theories to explain the results, and alternate hypotheses for future work were discussed where appropriate. Recommendations were advocated as mandated both by the service contract and the work orders. City Light never had to follow any recommendations, but Raven as consultant made them in good faith.

The scientific method format also preserved for Raven the role of objective third party should City Light be embroiled in legal controversy. I would really hate to take the witness stand some time and be asked, "Didn't you foresee problem such and such, and recommend action such and such?" "Yes, but it was all deleted."

Another reason that the dual purpose report is inadequate is educational. The next new intern who is assigned a project needs to see what theories and plans were on the minds of those last working on the project. If nothing else, issues, ideas and recommendations are available and provided for the new person.

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Some projects are so technically pedestrian that the dual purpose report suffices. In these cases, the discussion is so obvious and so incontroversial that no part of it need be proprietary. The "Discussion" section of the Georgetown Flume Project, however, became systematically edited for possible controversial statements until the discussion was finally, totally eliminated. In the process there was considerable effort expended by both sides on the draft form and on the final form. Even though the final form now contains nothing to upset the outside sector, Raven feels there is a discussion that needs to be presented to Seattle City Light. It would be negligent of Raven not to provide all useful and pertinent information. In the enclosed "Discussion Addendum," these statements can remain proprietary at your discretion. Please contact us if you feel this system needs further revision.

Sincerely yours,

Michael L. Healy, Ph.D.
Research Manager

MLH/sc

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DISCUSSION ADDENDUM

The decrease in PCB concentrations in the flume system over time is documented in the 1989 Summary Table of Results. Raven attributes this to washing of the sediments by rainfall and redistribution of the sediments by tidal action. These processes seem to continue. The flume head sediment results show a decrease from 123 ppm in 1987 to 9.6 ppm in the latest sampling, as shown in Table III. There appear to be few mechanisms for sediment removal in the flume head and the water above the sediments appears stagnant during dry periods. The data in Table III support an ongoing transport process to remove PCBs. A possible explanation is illustrated by the following scenario.

1. Contaminated sediments were deposited in the flume head between the 1985 cleanup period and the 1987 sampling period.

2. Contamination from the flume head slowly moved into the flume and appeared at concentrations of a few parts per million in 1988.

3. The PCBs in the flume head have decreased somewhat in two years due to rains.

4. The PCBs in the sediments of the flume near the tidegates have decreased. Three mechanisms are responsible: a) rainwater washing, b) reworking and washing of sediments by tidal action, and c) deposition of clean fill sand from Boeing landscape projects on the flume banks.

A logical hypothesis that arises from the above interpretation is that if the sediments in the flume head were removed, then the flume would purge itself of sediments containing traces of PCBs.

The wood core sample collection was begun in 1984 (Work Order #84-6). A sample one-foot upstream of the tide gates contained 1.7 ppm Aroclor 1242. A sample downstream of Myrtle St. contained <0.1 ppm. All the recent wood core data are

presented in Table I and are at concentrations below a few parts per million. The presence of PCBs in the wood planks may be regarded as more permanent contamination. Washing by rainwater and tidewater would have much less effect on PCBs inside the planks than on PCBs in the sediments.

Raven recommended cleaning of the flume head sediments in the 1988 report. Since the flume head was cleaned after 1985, and since the 1987 results showed high PCB concentrations, the assertion that the flume head was recontaminated seems rather obvious. Since all input pipes to the flume head were plugged after 1987, the assertion that recontamination is no longer occurring is reasonable. Some storm drains with a history of contamination and with a connection to the flume head can be identified in past reports.

Seattle City Light may wish to consider the above assertions during any future planning of the fate of the flume.